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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,911	06/12/2002	Kenneth Guild	604-630	2285
23117 7590 08/01/2007 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER CURS, NATHAN M	
			ART UNIT 2613	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/088,911

Applicant(s)

GUILD ET AL.

Examiner

Nathan Curs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7, 8, 10-16, 22, 23, 25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7, 8, 10-16, 22, 23, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 and depending claims 13-16 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: a step or steps for using an optical tap to send a first part of the optical signal to be processed by a traffic processor and to second a second part of the optical signal to the wavelength converter. The claim as written recites that the optical signal is transmitted to a traffic processor and then later the optical signal is passed through a wavelength converter. However, according to the disclosure, the traffic processor and wavelength converter see differing portions of the optical signal. The portion of the optical signal that passes through the wavelength converter is earlier separated from the portion of the optical signal transmitted to the traffic processor.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 7, 10, 11, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. ("Chang") (US Patent No. 6580537) in view of Harley et al. ("Harley") (US Patent No. 6574016).

Regarding claims 1, Chang discloses a method of routing control for an optical data signal to be transmitted through an optical network, comprising operating an optical source to generate a substantially coherent continuous-wave light beam, modulating the light beam with a data stream to produce an optical data signal, and also modulating the data signal with control information and reading the control information to determine the routing for the optical data signal (fig. 2 and col. 9, lines 3-36; col. 10, lines 18-30; col. 11, lines 13-35; and fig. 7 and col. 17, line 66 to col. 18, line 9). Chang does not disclose modulating an amplitude modulated data signal with the control information using a substantially constant amplitude modulation technique. Harley discloses an optical system where a subcarrier control signal is used to modulate an amplitude modulated optical data signal (col. 1, lines 35-56), where the subcarrier signal has substantially constant amplitude modulation (col. 5, lines 5-13). Harley also discloses minimizing undesirable effects that the subcarrier modulation imposes on the optical data signal (col. 5, lines 13-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to change the subcarrier modulation technique of Chang such that the subcarrier signal is added to an optical data signal by optically modulating the optical data signal with a subcarrier signal having a substantially constant amplitude modulation, as taught by Harley, to provide the benefit of minimizing undesirable effects of the subcarrier modulation on the data signal modulation.

Regarding claim 3, the combination of Chang and Harley discloses a method as claimed in claim 1, wherein the control information is added to the optical data signal by means of a

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phase-shift-keying modulation technique (Harley: col. 5, lines 5-13, as applicable in the combination).

Regarding claim 7, the combination of Chang and Harley discloses a method as claimed in claim 1, wherein following the modulation of the light beam with the data stream, the optical data signal is passed a constant amplitude modulator to which is supplied the control information to be applied to the optical data signal (Harley: fig. 2 in light of col. 5, lines 5-21, as applicable in the combination).

Regarding claim 10, Chang discloses an optical data signal network including a transmitter adapted to encode control information on an optical data signal to be transmitted through an optical network, which transmitter comprises an optical source arranged to generate a substantially coherent continuous-wave light beam, a modulator which modulates said light beam with a data stream and control information, to produce an optical data signal, and which optical data signal network further comprises a network element arranged to route the optical data signal in response to the control information (fig. 2 and col. 9, lines 3-36; col. 10, lines 18-30; col. 11, lines 13-35; and fig. 7 and col. 17, line 66 to col. 18, line 9). Chang does not disclose a substantially constant amplitude modulator arranged to modulate an amplitude modulated data signal with control information, using a non-amplitude modulation technique. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Harley with Chang, as described above for claim 1.

Regarding claim 11, the combination of Chang and Harley discloses an optical data signal transmitter as claimed in claim 10, wherein the optical source comprises a laser source (Chang: fig. 7, element 750, as applicable in the combination).

Regarding claim 22, Chang discloses an optical data signal receiver for reading a light beam modulated with control information and modulated with data, the receiver comprising a

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control information reader and a router for routing the modulated data stream in response to the control information (fig. 2 and col. 9, lines 3-36; col. 10, lines 18-30; col. 11, lines 13-35; and figs. 7 and 8 and col. 17, line 66 to col. 18, line 20). Chang does not disclose that the data modulation is amplitude modulation and that the control information modulation is constant amplitude modulation. However, Harley discloses subcarrier detection using a coupler/tap and detector technique similar to Chang (col. 5, lines 22-40) and discloses using a substantially constant amplitude modulation subcarrier control signal to modulate an amplitude modulated optical data signal (col. 5, lines 5-13). Harley also discloses minimizing undesirable effects that the subcarrier modulation imposes on the optical data signal (col. 5, lines 13-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to change the subcarrier modulation technique of Chang such that the optical data signal is modulated with a subcarrier signal having a substantially constant amplitude modulation, as taught by Harley, to provide the benefit of minimizing undesirable effects of the subcarrier modulation on the data signal modulation.

Regarding claim 23, the combination of Chang and Harley discloses an optical data signal receiver as claimed in claim 22, further comprising means for removing the control information from the modulated light beam (Chang: col. 11, lines 13-35; and figs. 7 and 8 and col. 17, line 66 to col. 18, line 20).

5. Claims 2 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US Patent No. 6580537) in view of Harley et al. ("Harley") (US Patent No. 6574016) as applied to claims 1, 3, 7, 10, 11, 22 and 23 above, and further in view of Benedetto et al. ("Benedetto") (Benedetto et al.; *Theory of polarization shift keying modulation*; Communications, IEEE Transactions on; Volume 40, Issue 4, April 1992, pages: 708-721).

Regarding claim 2, the combination of Chang and Harley discloses a method as claimed in claim 1, where the control information is added to the optical data signal by a substantially constant amplitude modulation technique such as FSK or PSK (Harley: col. 5, lines 5-13 as applicable in the combination), but does not disclose that the control information is added to the optical data signal by means of a polarization modulation technique. Benedetto discloses POLSK as an alternative to FSK and PSK (page 708, section "I. Introduction"). It would have been obvious to one of ordinary skill in the art at the time of the invention to use POLSK as the control information modulation technique in the combination of Chang and Harley, since POLSK has the advantage of being highly insensitive to laser phase noise, as taught by Benedetto (page 717, section "V. System Considerations").

Regarding claim 15, the combination of Chang and Harley discloses a method as claimed in claim 14, where the updated control information is added to the optical data signal by a substantially constant amplitude modulation technique such as FSK or PSK (Harley: col. 5, lines 5-13 as applicable in the combination), but does not disclose that the updated control information is encoded on the optical signal by a polarization modulation technique. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to further combine Benedetto with the combination of Chang and Harley, as described above for claim 2.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US Patent No. 6580537) in view of Harley (US Patent No. 6574016), as applied to claims 1, 3, 7, 10, 11, 22 and 23 above, and further in view of Yonenaga et al. ("Yonenaga") (US Patent No. 5543952).

Regarding claim 8, the combination of Chang and Harley discloses a method as claimed in claim 1, where the high data rate amplitude modulated optical source is an externally

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modulated laser (Chang: fig. 7) but does not explicitly disclose that the externally modulated laser is based on a Mach-Zehnder interferometer. Yonenaga discloses a Mach-Zehnder external modulator for high speed optical transmission (col. 1, lines 7-34). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a Mach-Zehnder external modulator for the external modulated laser of Chang, since Mach-Zehnder external modulators avoid chirping, as taught by Yonenaga.

7. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US Patent No. 6580537) in view of Harley (US Patent No. 6574016), as applied to claims 1, 3, 7, 10, 11, 22 and 23 above, and further in view of Mamyshev et al. ("Mamyshev") (US Patent No. 5473458).

Regarding claim 25, the combination of Chang and Harley discloses a method as claimed in claim 1 but does not disclose that the data signal is modulated with the control information before being modulated with the data stream. However, Mamyshev discloses optical modulation comprising amplitude modulation followed by non-amplitude modulation, where the order of the modulations is reversible (fig. 1 and col. 9, lines 1-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to reverse the order of modulation in the combination of Chang and Harley, based on the linearity principle, as taught by Mamyshev.

Regarding claim 26, the combination of Chang and Harley discloses an optical data network as claimed in claim 10, but does not disclose that the substantially constant amplitude modulator is arranged to modulate the optical data signal before the optical data signal is modulated with the data stream. However, it would have been obvious to one of ordinary skill in

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the art at the time of the invention to combine the teaching of Mamyshev with the combination of Chang and Harley as described above for claim 25.

Response to Arguments

8. Applicant's arguments filed 14 May 2007 with respect to Fee, specifically, the arguments regarding the claimed concept of deciding upon the routing of the data depending on the decoded control information, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Chang.

Conclusion


9. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (571) 272-3028. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (800) 786-9199.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pairedirect.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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